MAROS, Dezideriu, ing.; CSULAK, Acatiu, ing.; LEWY, Ladislau, ing.

Profiling the worm cutters for the machining of ratchet wheels by rolling method. Metalurgia constr mas 13 no.10:880-884 O '61.

(Metal-cutting tools)
(Rolling(Metalwork)

CSULAK, A.

A method of geometric calculation of corrected cylindrical gearings.
Bul stiint polit Cluj 6:279-293 '63.

CSULAK, A.; SZEKELY, I.

Contributions to the multiple gearing theory of spur
gear wheels. Bul stiint polit Cluj no.7:255-262 '64.

CSULLAG, Jozsef, dr.

Eosinophilic granuloma of the skull-cap, appearing in the form of multiple myeloma. Magy. radiol. 15 no.5:299-302 S '63.

1. A Pecsi Orvostudomanyi Egyetem I sz. Belklinika (igazgato: Barta Imre dr. egyetemi tanar) kozlemenye.
(SKULL NEOPLASMS)   (EOSINOPHILIC GRANULOMA)
(MULTIPLE MYELOMA)   (DIAGNOSIS, DIFFERENTIAL)
(BIOPSY)   (RADIOGRAPHY)   (NEOPLASM RADIOTHERAPY)

LAMPE, Istvan; H. TOMITS, Gabriella; CSULLOG, Ferenc

Our audiometric and otoneurological observations on glaucoma
patients. Szemeszet 100 no.3:145-149 S '63.

1. Debreceni Orvostudomanyi Egyetem Ful-orr-gegeklinikajanak
(Igazgato: Jakabfi Imre egyet. tanar) es Szemklinikajanak
(Igazgato: Kettessy Aladar egyet. tanar) kozlemenye.
        (GLAUCOMA)   (NYSTAGMUS)   (COCHLEA)
        (AUDIOMETRY)   (VESTIBULAR FUNCTION TESTS)

CZECHOSLOVAKIA

CSUPKA, S; PETRASOVA, M; CARACH, J.

Section on Radiation Hygiene (Oddelenie radiacnej hygieny),
KHES, Bratislava - (for all).

Prague, Ceskoslovenska hygiena, No 10, December 1965, pp 615-617

"Content of Sr^{90} and Cs^{137} in radioactive deposit 1964."

L 24736-65   EWT(r)/EWA(h)

ACCESSION NR: AP5006173

TITLE: Observation of the overall beta- and strontium-90 activity in

SOURCE:

TOPIC TAGS: radioa

Abstract: The article reports on the Strontium-90 and beta-rays activity in the Bratislava region. Strontium-90 and beta-rays fall out data were collected since 1962 and results for the magnitude of this fall out are investigated. Results for the years 1962 and 1963 are presented in tabulated form. and in p...al di...

measurement

Card 2/2

L 24154-66   EWA(h)

ACC NR: AP6014979   SOURCE CODE: CZ/0038/66/000/001/0016/0019

AUTHOR: Csupka, Stefan--Chupka, Sh.; Petrasova, Maria--Petrashova, M.; Carach, Jozef--Tsarakh, I.

ORG: Regional Hygiene-Epidemiological Station, Bratislava (Krajska hygienicko-epidemiologicka stanica)

TITLE: Contamination of the biosphere by sup 137 Cs from weapon test fallout

SOURCE: Jaderna energie, no. 1, 1966, 16-19

TOPIC TAGS: cesium radioactive fallout, atmospheric contamination, radioactive contamination

ABSTRACT: The concentration of ^{137}Cs in the precipitation on the territory of western Slovakia was measured in 1962 and 1963. The total β-active precipitation had, in 1963, a tendency to decrease. The specific gravity of the semi-monthly activity of ^{137}Cs in the total β activity amounted in 1962 to 0.9% and in 1963 to 3.2%. In 1963 the activity of ^{137}Cs was 1.3 times higher than the ^{90}Sr. The cumulative value of the radiocesium in 1962 to 1963 amounted to 37.8 nC/m². This paper was presented by F. Behounek. The authors thank Academician F. Behounek for critical comments and useful advice. Orig. art. has: 2 figures and 2 tables. /NA/

SUB CODE: 18 / SUBM DATE: none / ORIG REF: 005 / OTH REF: 010 / SOV REF: 001

Card 1/1   UDC: 546.36.02: 621.039: 614.7(437)

CZECHOSLOVAKIA

CSUPKA, Stefan; CARACH, Jozef; PETRASOVA, Maria; Krajska Station
of Hygiene and Epidemiology (Hygienicko Epidemiologicka Stanice),
Bratislava.

"Content of Radioactive Strontium and Caesium in the Roots and
Leaves of Vegetables in 1964, and the Ecology of the Plants."

Abstract: The content of Sr^{90} and Cs^{137} in vegetables in Western
Slovakia was investigated during 1964. During the spring season
the vegetables contained nearly twice as much of the radioactive
elements as during the fall. The leaves contained about $1\frac{1}{2}$ times
as much of the radionuclides as the roots. A daily intake of Sr^{90}
per inhabitant based on the consumption of vegetables averaged
2.8 pCi of Sr, and 4.2 pCi of Cs^{137}. 4 Tables, 7 Western, 2 Czech,
1 Russian reference. (Manuscript received 10 Nov 65).
1/1

PETRASOVA, M.; CSUPKA, S.; CARACH, J.

The results of radioactivity measurements of dust and rain falls
in western Slovakia in 1961-1963. Cesk. hyg. 9 no.10:595-600
D ' 64.

1. Oddelenie adiacnej hygieny Krajskej hygienicko-epidemiolo-
gickej stanicy, Bratislava.

CSUPKA, S.; PETRASOVA, M.; CARACH, J.

Content of Sr90 and Cs137 in radioactive deposit in 1964.
Cesk. hyg. 10 no.10:615-617 D '65.

1. Oddelenie radiacnej hygieny Krajskej hygienicko-epidemio-
logickej stanice, Bratislava.

CSUPOR, L.

"Economy of Materials in Some of our Machine Factories", P. 5,
(TOBBTERMELES, Vol. 8, No. 8, July 1954, Budapest, Hungary)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4,
No. 1, Jan. 1955, Uncl.

LIMPAR, Istvan, oklveles kohomernok; CSURBAKOVA, Tatjana, oklevelos kohomernok

Ear formation tests on deep-drawn aluminum sheets. Koh lap 97 no.10:470-475 O '64.

CSURES, Z.

Scientific results and tasks in light industry; also, remarks by A. Kiss
and others. p. 75 KOZLEMENYEI. Budapest. (Reports issued by the Section
of Technical Sciences, Hungarian Academy of Sciences. Quarterly) Vol. 14,
No. 1/3 1954

SCURCE: East European Accessions List (EEAL) Library Of Congress
         Vol. 5, No. 6, June 1956

CSURGAI, Imre

Making preparations for the repair of the one hundred thousandth
car. Magy vasut 7 no.2:3 17 Ja '63.

1. Muhelybisottsagi titkar.

CSURGAI, Lajos; KORTVELYES, Istvan

Chemicalization in agriculture. Elet tud 17 no. 16:503-506
22 Ap '62.

CSURGAY, Arpad

Signal transmission problems of moving points. Hir techn
11 no.4:151-159 Ag '60.

1. Tavkozlesi Kutato Intezet.

CSURGAY, Arpad

Designing inhomogeneous transmission line sections with prescribed reflection. Magy hir techn 12 no.3:85-93 Je '61.

1. Tavkozlesi Kutato Intezet.

85632

H/009/60/000/004/001/001
A211/A026

6.2000 (2903,3003,3203,3303)

AUTHOR: Csurgay, Árpád

TITLE: On Signal Transmission Problems of Moving Points

PERIODICAL: Híradástechnika, 1960, No. 4, pp. 151 - 159

TEXT: In the investigation of signal transmission of moving objects it
was supposed that transmitter and receiver, which are to be connected by the
signal channel, are in inertial position or, at least, that their speed could be
ignored since their speed compared with the speed of light is negligible. The
signal transmission of rockets traveling at light speed or coming close to it
presents a different problem and can be solved by the general examination of
signal transmission problems of moving objects applying the special theory of
relativity. To determine the quality of intelligence transmitted between two
such moving objects, the author deals with two problems. First he describes the
electromagnetic field of antennas moving with high velocity, and secondly he de-
termines the amplitude and frequency radiation pattern of transmitter and re-
ceiver antenna. He arrives by various equations at a final formula which repre-
sents the type of the intelligence transmitted as a time function:

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On Signal Transmission Problems of Moving Points

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$$f_B(t) = \frac{A(\varphi', \vartheta')}{r_0} \varkappa(1 + \frac{v}{c}\cos\varphi') \sum_{i=1}^{\infty} C_i e^{j\omega' i \varkappa(1 + \frac{v}{c}\cos\varphi')(t - \frac{nr_0}{c})}. \quad (49)$$

This equation contains 1) the transformed equation representing frequency radiation pattern $\omega = \omega' \varkappa(1 + \frac{v}{c}\cos\varphi')$ (39), where ω is the frequency received, ω' the frequency transmitted and φ' the angle formed by the antenna and the direction in which it moves; 2) the transformed equation representing the amplitude radiation pattern $E = \frac{A}{r'}\varkappa(1 + \frac{v}{c}\cos\varphi')$ (41), where A is the transmitting antenna and r' the distance between antennas. The last section of the equation (49) is the equation $f_A(t') = \sum_{i=1}^{\infty} C_i e^{j\omega' i t'}$ (47), representing transmitted $f_A(t')$ function given in the Fourier-series as sum of its harmonic components. When the radiation pattern of the antenna is A (φ', δ'), the discernible field intensity is

$$E' = \frac{A(\varphi', \vartheta')}{r'} \sum_{i=1}^{\infty} C_i e^{j\omega' i (t - \frac{r'r'}{r'} \cdot \frac{I}{c})}, \quad (48)$$

which is in fact a flat wave propagating in the $\frac{r'}{r'}$ direction. The author inves-

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On Signal Transmission Problems of Moving Points

tigates the distortion of electromagnetic waves at some specific distances be-
tween transmitter and receiver with the help of the equation (49). It is appar-
ent from this equation that amplitude as well as frequency of different compo-
nents is variable in relation to the function of time. Through a comparison of
the Fourier series (48) and (49) it can be established that the ratio of the in-
dividual amplitude and frequency components is constant at any moment and equal
to the ratio of the original values of the corresponding components. The abso-
lute band width and the carrier frequency change proportionately with the time.
The signal sent by the transmitter is expressed by the equation

$$f_A (t') = \frac{\tau'}{\pi} \int_0^\infty \frac{\sin \frac{\omega' \tau'}{2}}{\frac{\omega' \tau'}{2}} \cos \omega' t' \cdot d\omega' \tag{62}$$

and the received signal by the equation

$$f_B (t) = A_0 \, s_2 \frac{\frac{\tau'}{s_1}}{\pi} \int_0^\infty \frac{\sin \frac{\omega \frac{\tau'}{s_1}}{2}}{\frac{\omega \frac{\tau'}{s_1}}{2}} \cos \omega (t - \frac{n r_0}{c}) \, d\omega, \tag{64}$$

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85632

On Signal Transmission Problems of Moving Points

H/009/60/000/004/001/001
A211/A026

where g_1 is the frequency change; g_2 the amplitude change in time function, and t the time of impulses sent by the transmitter. The author further shows by calculations how the signals would change through the relative velocity between transmitter and receiver in four hypothetical transmissions. In the first example the author assumes that a rocket, traveling at a distance of 1,740,000 km from earth at a speed half that of light, would send SOS signals to a station on earth. The signals received on earth would be as presented in Figure 10. In the second example, the author assumes that two rockets are traveling away from the earth, one at a speed of 0.385xc and the other at 0.6 xc. Were a station on earth to transmit the Beethoven's Fifth Symphony to these rockets, then the first would receive this transmission one quint lower and each tone would be 1.5 times longer than the original one. The other would receive this transmission one octave lower and each tone would be two times longer. In the third example, the author assumes that a rocket approaching the earth were to send a one-hour comment to earth. How this transmission would be received on earth is shown in the equation

$$\frac{\tau'}{\tau} = \frac{1 - \frac{v}{c}}{\sqrt{1 - (\frac{v}{c})^2}} = \sqrt{\frac{1 - \frac{v}{c}}{1 + \frac{v}{c}}}$$

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On Signal Transmission Problems of Moving Points

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A211/A026

The last example assumes a journey to Sirius. To the traveler this journey would last 12 years, but on earth 15 years would elapse. A continuous 12-year comment transmitted during this journey from the rocket to the earth would be heard over a period of 24 years on earth. A return journey from Sirius would appear also as a 12-year journey to the traveller but on earth again 15 years would elapse, whereas the transmission of a comment during the return journey would be heard on earth only over a period of 6 years. There are 11 figures and 5 references: 3 Hungarian and 2 German.

ASSOCIATION: Távközlési Kutató Intézet (Telecommunication Research Institute)

Card 5/5

H/009/61/000/003/001/001
D020/D105

9,1400

AUTHOR: Csurgay, Árpád

TITLE: Designing lengths of inhomogeneous transmission lines with
             prescribed reflection

PERIODICAL: Magyar Hiradástechnika, no. 3, 1961, 85-93

TEXT: In investigating the problem of a length of an inhomogeneous
transmission line, used for matching junctions of two transmission lines
with different characteristic impedance, the author deals with (1) de-
termining of the reflection function of a transition with an arbitrary
contour and (2) determining of the geometrical configuration of a transi-
tion defined by a given reflection fuction. In the first section of his
work, the author defines the four-pole parameters of an inhomogeneous wave
guide, based on an article by G. Reiter (Ref. 10: Generalised Telegra-
phist's Equation for Wave Guides of Varying Cross-section, Convention on
Long-Distance Transmission by Waveguide, London, Jan., 1959, Proc. IEE,
Part B.) and Willis - Sinha (Ref. 8: Nonuniform Transmission Lines as

Card 1/6

H/009/61/000/003/001/001
D020/D105

Designing lengths of inhomogeneous transmission lines with prescribed re-
flection

Impedance Transformers, Proc. IEE, Part B, March, 1956), and points out
the conditions under which a length of such a line can be considered as a
transmission line with varying characteristic impedance. In the second
section, the author deals with the synthesis of an incident reflection fre-
quency function of a length of an inhomogeneous transmission line with
matched terminals. The investigation of the designing problems of a tran-
sition with prescribed parameters is based on the fact that the relation
between the contour function

$$f(x) = -\frac{1}{2}\frac{Y_0'(x)}{Y_0(x)} = \frac{1}{2}\frac{d(\ln Z_0(x))}{d_x} \qquad (16)$$

where Y_0 is transmission line admittance and Z_0, characteristic impedance

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Designing lengths of inhomogeneous transmission lines with prescribed re-
flection

of the transmission line, and the reflection frequency function of a length
of an inhomogeneous transmission line, is analogous to the relation of
irradiation function and directional characteristic of slot antennas, as
described by Kovács and Solymár (Ref. 11: Acta Technica, 1956). The in-
cident reflection frequency function is equal to one of the elements in
the diagonal of the reflection matrix; the element, on the other hand, is
equal to the Fourier transform of the contour function

$$f(x) = \mathcal{G}^{-1}\{h(\Omega)\} = \sum_{k=0}^{n} \frac{C_k}{2} \cos \frac{k\pi x}{L} :$$

(11)

Consequently, the synthesis is solved with the inversion of the Fourier
transform. The inverse Fourier transform of the given reflection function
is equal to the contour function from which the characteristic impedance

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Designing lengths of inhomogeneous transmission lines with prescribed re-
flection

function

$$Z_0(x) = \sqrt{Z_{o1}Z_{o2}} \exp \left\{ \frac{1}{2L} \left(\ln \frac{Z_{o2}}{Z_{o1}} \right) x + \sum_{k=1}^{n} \frac{C_k L}{k\pi} \sin \frac{k\pi x}{L} \right\}$$ (17)

is derived. The geometrical data of a length of an inhomogeneous trans-
mission line can be computed from this equation where Z_{o1} and Z_{o2} are the
characteristic impedances of lines to be connected. With the help of
Eq. (17), the author and his associates designed and constructed a tran-
sition, with zero reflection at 3,600 and 3,800 Mc, for a microwave cir-
cuit of a broadband radio network. The standing wave ratio of the tran-
sition, as a function of frequency, was measured by conventional methods
and the data are shown in Fig. 9. There are 9 figures and 17 references:
5 Soviet-bloc and 12 non-Soviet-bloc. The four most recent references to
English-language publications read as follows: L. Solymar: On Higher Order

Card 4/6

H/009/61/000/003/001/001
D020/D105

Designing lengths of inhomogeneous transmission lines with prescribed reflection

Approximations to the Solution on Nonuniform Transmission Lines, Proc. IRE, Nov., 1957; K. Matsumaru: Reflection Coefficient of E-Plane Tapered Rectangular Waveguide, IRE Transactions on MTT, April, 1958; K. Matsumaru: Reflection Coefficient of a Pyramidically Tapered Rectangular Waveguide, IRE Transactions on MTT, April, 1959; G. Reiter: Generalised Telegraphist's Equation for Waveguides of Varying Cross-section, Convention on Long-Distance Transmission by Waveguide, Jan., 1959, Proc. IEE, Part B.

ASSOCIATION: Távkozlési Kutató Intézet (Telecommunication Research Institute)

Card 5/6 .

H/009/61/000/003/001/001
D020/D105

Designing lengths of inhomogeneous transmission lines with prescribed re-
flection

$r = \dfrac{1+|r|}{1-|r|}$
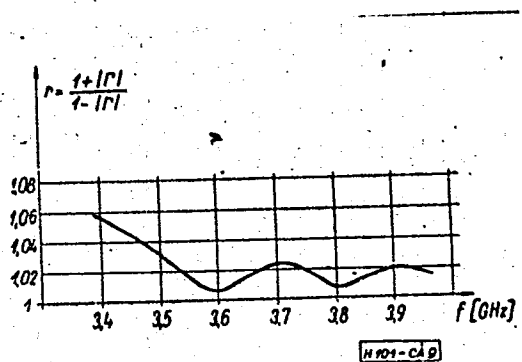
Card 6/6   Fig. 9.

CSURGAY, A,

CSURGAI, A. [Csurgay, A.]; SENASHI, Sh. [Szenasi, S.]

Analysis of microwave noisy mixers. Acta techn Hung 42
no.1/3:171-179 '63.

1. Nauchno-issledovatel'skiy institut svyazi, Budapesht.

C.A.   C.SURI, I.

14

The graphic comparison of the chemical composition of medicinal waters of the Great Hungarian Plain. Ilona Csuri, Hidrol. Kozlony 30, 62-5(1950).—The graphic method proposed by Maucha (C.A. 45, 1277c) was modified for illustrating and a 24-angle diagram was introduced for illustrating the chem. compn. of waters. Besides the 9 groups of medicinal waters proposed by Than waters of alkali soils, characterized by Na₂CO₃ content, waters contg. 1 above 0.001 g./l. (iodic medicinal waters), and earthy-halide waters with a dominating Cl content and with about an equal content of Na and alk. earth metals. István Finály

CSUROS, Csaba, biologus

Single-cell parasites of our organism. Term tud kozl
8 no. 2: 77-80 F '64.

1. Baranya megyei Kozegeszsegugyi es Jarvanyugyi Allomas,
    Pecs.

Therapy

HUNGARY

KAMARAS, Janos, Dr., and CSUROS, Eva, Dr.,   First Pediatric Clinic
at the University for Medical Sciences (Orvostudomanyi Egyetem, I.
Gyermekklinika) in Budapest (Director: GEGESI KISS, Pal, Dr.).

"Experiences with Steroid Therapy in Rheumatic Fever"

Budapest, Orvosi Hetilap, Vol 107, No 28, 10 Jul 1966, pp 1297-1300.

Abstract: The authors describe 237 cases of children suffering from rhe-
umatic fever and carditis, respectively. All were afflicted for less than
30 days before treatment commenced, and all showed signs of the disease
for the first time. The effects of therapy employing prednisolone + amid-
azophene and amidazophene alone were discussed with respect to total re-
covery and any cardiac changes that developed. The criteria for the clas-
sification of the cases were described and it was recommended that the
treatment involving prednisolone be employed in all cases where there is
a suspicion of carditis. 65 references, including 9 Hungarian, 1 Russian,
1 German, and 54 Western.

1/1

PINTER, Jozsef, dr.; CSUROS, Eva, dr.
On the problem of differential diagnosis of unilateral polycystic
kidney. Magy. sebeszet 14 no.2:119-123 Ap '61.

1. A Budapesti Orvostudomanyi Egyetem Urologiai Klinika (Igazgato:
dr. Babics Antal egyetemi tanar, akademikus) es az I. sz. Gyermek-
klinika (Igazgato: dr. Gegesi Kiss Pal egyetemi tanar, akademikus)
kozlemenye.

(KIDNEY DISEASES diag)

LANCOS, Ferenc, dr.; CSUROS, Eva, dr.; KAMARAS, Janos, dr.; HALMAI, Zsuzsa, dr.

Ivemark syndrome associated with bilateral embolism of the common carotid artery. Gyermekgyogyaszat 15 no.4:120-127 Ap'64.

1. A Budapesti Orvostudomanyi Egyetem I.sz. Gyermekklinikajanak (igazgato: Gegesi Kiss, Pal, dr., akademikus, egyetemi tanar) es a II.sz.Korbonctani Intezetenek (igazgato: Haranghy, Laszlo, dr., akademikus, egyetemi tanar) kozlemenye.

*

LANCOS,F.; CZUROS, Eva; KAMARAS, J.; HALMAI, Zs.

Ivemark's syndrome with bilateral embolism of the common carotid
artery. Acta paediat. Acad. sci. Hung. 5 no.3:317-327 '64

1. I. Kinderklinik und II. Pathologisch-Anatomisches Institut
der Medizinischen Universitat , Budapest.

FARKAS, J.; CSUROS, Eva

Steroid treatment in rheumatic fever. Acta paediat. acad. sci.
Hung. 6 no.3/4:359-365 '65.

1. First Department of Paediatrics, University Medical School,
Budapest. Submitted May 27, 1965.

CSUROS, Lajos

       Gibraltar. Elet tud 18 no.40:1263-1267 6 0 '63.

       1. "Elet es Tudomany" szerkeszto bizottsagi elnoke.

CSUROS, S.

Contributions to the study of macromycetes in the Harghita Mountains.
p. 12.

ANALELE ROMINA-SOVIETICE. SERIA AGRICULTURA
Vol. 10, No. 3, May/June 1956., Rumania

SOURCE: East European Accessions Lists, Vol. 5, No. 10, Library of Congress,
         Oct. 1956.

C SuRos, ST. ;

COUNTRY	:	Rumania
CATEGORY	:	Meadow Cultivation.
ABS. JOUR.	:	RZhBiol., No. 1959, No. 15520
AUTHOR	:	Obrejanu, Gr.; Menes, N.; Velea, C.; Maxim, I.; Csuros, St.; Hamerith, I.; Tuxter, Dora;
INST.	:	Cluj Affiliate, AS RPR
TITLE	:	Increased Fertility in Natural Meadows of eastern Mountains (Rumania).
ORIG. PUB.	:	Studii si cercetari arron. Acad. RPR Fil. Cluj. 1957, 8, No.1-2, 99-116
ABSTRACT	:	No abstract.

1/1

CARD: *Dragan, Viorica

CSUROS, S.

A review of Vegetation Studies in the Region of Orseg, Hungarian Part of the
Eastern Slopes of the Alps by T. Pocs and others.   p. 363.

Academia Republicii Populare Romine. Filiala Cluj. STUDII SI CERCETARI DE
BIOLOGIE. Cluj, Rumania. Vol. 9, no. 2, 1958.

Monthly List of East European Accessions (EEAI) Vol. 8, no. 7, July 1959.

Uncl.

CSUROS, St.; RESMERITA, I.

The evolution process of prairies with Festuca rubra in Transylvania.
Studii cerc biol veget 13 no.2:223-232 '61.

(EEAI 10:11/12)

1. Catedra de botanica a Universitatii Babes-Bolyai si Sectia de
pasuni si finete a Sfatului Regional Cluj. Comunicare presentata da
academician Emil Pop.

(Festuca)

CSUROS, Stefan

Botanical characteristics of the Transylvanian Plain. Analele
biol 17 no.5:117-127 Ag '63.

CSUROS, Stefan

Geobotanic studies on Pietrele Albe Mountain (Vladeasa Massif).
Studii cerc biol veget 15 no.1:71-90 '63.

RESMERITA, I.; NEMES, M.; CSUROS, St.

Stationary research on the grassy vegetation on the
Vladeasa-Micau Massif. Studii cerc biol veget 15
no.1:131-150 '63.

BECK, Mihaly; BITE, Pal; BRUCKNER, Gyozo; CSENTES, Jozsef; CSUROS, Zoltan;
    DEAK, Gyula; ERDEY-GRUZ, Tibor; ERDEY, Laszlo; FABIAN, Pal;
    FINALY, Istvan; FODOR, Gabor; FODORNE CSANYI, Piroska;
    GYORBIRO, Karoly; INZELT, Istvan; KUCSMAN Arpad; NEUMANN, Erno;
    PUNGOR, Erno; SCHNEER, Anna; SCHULEK, Elemer; SZABADVARY, Ferenc

Rules for the Hungarian chemical nomenclature and orthography.
Kem tud kozl MTA 17 no.1/4:1-292 '62.

1. "A Magyar Tudomanyos Akademia Kemiai Tudomanyok Osztalyanak
Kozlemenyei" szerkeszto bizottsagi tagja (for Bruckner, Csuros,
Laszlo Erdey, G.Fodor, and Schulek). 2. "A Magyar Tudomanyos
Akademia Kemiai Tudomanyok Osztalyanak Kozlemenyei" szerkesztoje
(for Erdey-Gruz). 3. "A Magyar Tudomanyos Akademia Kemiai
Tudomanyok Osztalyanak Kozlemenyei" technikai szerkesztoje
(for Finaly). 4. Muvelodesugyi Miniszterium (for Csentes).
5. Magyar Tudomanyos Akademia Helyesitasi Bizottsage (for Fabian).
6. Nehezipari Miniszterium (for Neumann).

a-3

Action of nitrosyl bromide on amino-acids.
Z. Csürös (Magyar Chem. Fol., 1929, 35, 113—119;
Chem. Zentr., 1930, i, 1443).—Substitution of the
amino group by bromine takes place only with α- and
β-substituted acids. The following substances are
described: γ-bromo-isocaproic acid, m. p. 78—80°;
l-bromo-caproic acid, m. p. 90°; β-bromoisovaleric
acid, m. p. 118°; γ-bromobutyric acid, m. p.
100° (benzyl derivative, m. p. 81—82°).

PROCESSES AND PROPERTIES INDEX

Synthesis of glucosides and compound sugars. ZOLTÁN CSŰRÖS. *Magyar Chem. Folyóirat* 38, 44–55(1932).—A short summary of theories of structure and description of the expts. of Haworth, Hudson and Zemplén, especially on the methods of investigation of structure by means of Hg(OAc)$_2$, FeCl$_3$ and HgBr$_2$.   S. S. DE FINALY

Growth hormones. Zoltán Csűrös. *Magyar Chemiai Folyóirat*, 41, 150–63(1935).—The characteristics of bios I, II and III and of auxin are discussed.   S. S. de F.

METALLURGICAL LITERATURE CLASSIFICATION

Condensation of urea with aldehydes. Zoltan Csuros and Ferenc Vass. Magyar Chem. Folyoirat 45, (1939). Urea 2 mols. and CH₂O 1 mol. in the presence of concd. AcOH on a steam bath gave a white substance in 70.7% yield, contg. 30.08-40.32% N. The fractions sd. and insol. in alc. have practically the same compn., the different solubilities are probably due to different degrees of polymerization. Two mols. urea with 3 mols. CH₂O both without any catalyst on heating and without heating in presence of concd. AcOH gave an 80.7% yield. Various other modifications of the method showed no practical differences. The condensation product was partially hydrolyzed by CH₃CO₂H or H₂SO₄. Two mols. urea and 3 mols. AcH without catalysis or with 1% AcOH gave a white mass contg. 31.51-31.95% N. Treatment with 1% ammonia led to a formation of aldehyde-resin instead of the wanted condensation product. The condensation product could not be decomposed. One mol. urea and 1 mol. vanillin in alc. soln. with 1% NaOH or 1 mol. urea and 2 mols. vanillin with 1% AcOH gave a yellow-brown mass contg. 5.02-6.37% N and 20.82-22.46% CH₂O. The product could partially be decomposed by dissolving it in 10% NaOH and adding HCl. One mol. urea and 1 mol. freshly distd. furfural gave on heating with 38% HCl an ebonite-like black product contg. 23.48-23.87% N. One mol. urea in 2 mols. freshly distd. furfural gave after 1 day at room temp. a light-brown mass contg. 22.32-34% N.   S. S. de Finaly

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Chemistry of artificial materials [plastics]. Z. Csuros, *J. Hung. Chem. Soc.* 1, No. 2, 1-12(1940).—A review of such materials, viz., tech. org. macromol. plastics, their definition, classification, theoretical structure, compn. and prepn.; the theory and examples of polycondensation and polymerization producing macromols. characteristic of such materials are included.

B. C. P. A.

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Decarboxylation of resinic acids. Zoltán Csürös, Gyula Dely and Konstantin Zech. *Magyar Chem. Folyói-rat* 47, 91-111(1941).—Expts. were made with a Greek resin with acid no. 174 to study the decarboxylation proc-esses during distn. The acid no. decreased after 1 hr. boiling to 57, after 2 hrs. to 42, after 4 hrs. to 20, after 6 hrs. to 13.8; it did not diminish further. Much lower acid nos. were shown by the products after heating with 2% slaked lime: acid no. after 1 hr. 7, after 2 hrs. 4. Other salts were also investigated in the same stoichiometric amounts and it was found that the acid no.-decreasing effect of CaO, CaCO₃, anhyd. CaCl₂, Ca formate and Ca acetate is the same. The effect of Ca abietate was much weaker, also that of BaO and BaCO₃. Other salts gave after 1 hr. boiling the following acid nos.: powd. metallic Fe 3.1, Fe₂O₃ 0.5, Fe₂O₃ 3.1, FeCl₃.6H₂O 4.5, ferrous abietate 3.4, ferric abietate 7.1, silicotungstic acid 7.8, P₂O₅ 2.2, CoO 5.8, p-MeC₆H₄SO₃H 2.9, anhyd. ZnCl₂ 3.8, metallic Zn powder 12.8, ZnO 13.4. Also org. bases, such as aniline, pyridine, NHPh₂, etc. showed small decarboxylating ef-fects. Another series of expts. consisted in distn. of several portions of colophony on 3% Ca(OH)₂ or 1.5% Fe powder without changing these salts after each distn. The mixts. were first boiled 1 hr. The 10th distn. gave charges of oils with lower acid nos. and characteristics (b. p., I no., etc.) identical with those of com. resinous oils. The salts used repeatedly seem thus to have catalytic ef-fects.   S. S. de Finály

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Newer treatment methods in textile industries. Zoltán Csűrös (Univ. Tech. Sci., Budapest, Hungary). Kém. Lapja 3, 108-19(1942).—Cellulose textiles should be treated with 4-12% of sizing material by immersion or brushing. This treatment increases somewhat the tearing strength of cotton and of cotton plus cottonized fiber; it does not affect the strength of rayon. The Tootal-Broadhurst and the I. G. Farbenindustrie anticrease treatments were modified so as to prevent deterioration of regenerated cellulose by acid-contg. catalysts at temps. above 100°, and to prevent loss of anticrease agent in ordinary washing. The anticrease resins are completely washed out of fabrics in 5 min. at 70° in HCl soln. of pH 2 and in soda soln. of pH 11.

István Findly

PROCESSES AND PROPERTIES INDEX

Determination of N in nitro and nitroso compounds by the Kjeldahl method. Zoltán Csuros and Erzsébet Fodor-Kenczler. *Magyar Chem. Folyóiral* 48, 33-42 (1942); *Chem. Zentr.* 1943, I, 545-6.—The above procedure was found useful for the analysis of many nitro and nitroso compds.   W. T. H.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Viscose rayon. Zoltán Csuros and Sándor Groszmann. Hung. 132,165, Nov. 16, 1943. To prevent weakening of the fibers by H₂S evolved during the regeneration, oxidizing agents (e.g., 1 g./l. NaNO₂) are added to the regenerating baths.
                                        István Finály

Manufacture of phenoplastics from brown-coal tar-cresols. Zoltan Csuros and István Petri. *Magyar Chem. Folyóirat* 49, 11-26(1943); *Chem. Zentr.* 1943, II, 703—Expts. showed that in general cresols from Hungarian brown-coal tar, purified according to Csürös and Zech (cf. C. A. 38, 6075), can be used satisfactorily in molding powders. The cresol, sold water-white and free of color, contains about 40-80% m-cresol. The chem. and mech. properties of the plastics made with this cresol meet the DIN-standards. In order to det. the min. amt. required to impart satisfactory mech., chem. and molding properties, the m-cresol content was varied from 20 to 75%. With 35% m-cresol, the chem. and mech. properties of the plastics were good but the molding properties were unsatisfactory. A satisfactory hardness could be obtained only by increasing the time of setting. Results were not judged by the abs. values obtained but it, in order

to exclude exptl. errors, by their relative values, i. e., values obtained by comparison with pure phenol plastics. The insufficient hardness of the cresol plastics can be improved by raising the content of m-cresol or by adding phenol, e. g., by using a cresol contg. 60% of the m-phenol, or by using 30% m-cresol with 20% phenol. The molding powders of the type S meet the specifications excepting the hardness, like powders with cresols of other origins. This raises the manufg. costs somewhat. For the manuf. of an excellent hardness the addn. of a trifunctional component is required. Satisfactory resols could be made with an NH₃ catalyst; these are a satisfactory substitute for cresols from bituminous coal in the manuf. of hardened paper, brake shoes, etc.   A. K. Katerer

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Alkali sensitivity of developed naphthol AS dyes containing nitro groups. Zoltán Csuros (Univ. Tech. Sci., Budapest, Hungary). *Magyar Chem. Folyóirat* 50, 25-33 (1944).—Most ice colors undergo color changes in the presence of dil. (even 5%) solns. of Na_2CO_3. The original color could be restored *in vitro* by heating the soln. with dil. acids, but this restoration was not successful with dyed textiles. The sensitivity of dyes *to* alkalies is connected with their structure, especially for compds. contg. nitro groups located near azo groups. Compds. with nitro groups in the meta and para positions generally darken; o-nitro derivs. become lighter than the original color. The same observations were made on naphthol AS, naphthol AS-D, and naphthol AS-BO, even if bound to various diazotized bases. The results do not seem to

affirm the quinoid structure. Probably the theory of Radulescu-Alexa is correct, the possible explanation being that nitro groups change the quinone hydrazones to h hydroxy azo compds., and simultaneously increase the alkali-binding capacity, as observed in the case of nitrated phenols.   István Finály

PROCESSES AND PROPERTIES INDEX

Corrosion of metal sieves by a textile dye containing urea. Zoltán Csuros (Univ. Tech. Sci., Budapest, Hungary). *Magyar Chem. Folyóirat* 50, 33-7(1944).—Urea contained in a mixt. of dyes used for printing textiles was decompd. by urease to ammonia since the temp. of the factory was near to the optimal temp. of 30-8° of urease. The difficulty was overcome by adding 1-2 g. nipagin (Me *p*-hydroxybenzoate) to each kg. of dye mixt. The

best method is to add the urea just before printing or to keep prepns. in the refrigerator.   István Finály

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Derivatives of xanthates and aromatic nitro and amino compounds. Zoltán Csürös and István Rusznák. *Mag. yar Chem. Folyóirat* 50, 66-81(1944).—Cellulose xanthate, dry or in soln., can be stabilized by salts of aromatic nitro sulfonic acids, e.g. m-$O_2NC_6H_3SO_3H$ (I). The structure of the products was proved by model expts. with simple xanthates which gave cryst. derivs. Alkali salts (except K) of I, m-$O_2NC_6H_4NH_2$, PhNO_2, and m-$O_2NC_6H_4NHAc$, seem to be effective as stabilizers. The products are esters of Ph-NHCSOH formed according to the equation $4RNO_2 + 6R'OCS_2Na + 3H_2O = 4RNHCSOR'$ (II) $+ 3Na_2S_2O_3 + CO_2 + CS_2 + 2R'OH$. The following II were prepd. *Thiocarbanilates*, PhNHCSOR (R' given): Me (32.5% from MeOCS_2Na in 80% MeOH with PhNO_2), m. 97.5° (S 18.93, N 8.27, PhNH_2 40.35-7.92%); Et (27.3% from EtOCS_2Na in 80% EtOH), m. 70° (S 18.1, N 7.68, Ph-NH_2 45.55-7.00%); iso-Bu (35.7% from iso-BuOCS_2Na in 90% EtOH), m. 75° (S 15.0, N 6.6%). *m-Sulfothiocarbanilates:* Me (67.6% from MeOCS_2Na and m-$O_2NC_6H_4SO_3Na$ (III) in MeOH), contained S 34.0, N 5.18%; Et (83.1%), m. 270-5° (S 22.10, N 4.85, PhNH_2 27.3-8.9%); iso-Bu (68 8%), m. 243-5° (S 19.9, N 4.39%); *glyceryl* (34.5% from glyceryl xanthate and III in aq. EtOH 4 hrs. at 35° and 20 mm.), amorphous, m. 153-5° (S 19.31, N 4.31%). Cellulose xanthate (7%) dild. with water and treated with 5-10% AcOH, the liberated H_2S removed, and the soln. treated with III 10 hrs. as above, gives a product (S 12.02, N 2.13, PhNH_2 12.3-18.9%), identical with that obtained by Lilienfeld; the same compd. was obtained by treating 7% cellulose xanthate with NaOH, centrifuging, mixing with III, treating with CS_2, again dissolving in NaOH, and pptg. with satd. NaCl soln. Me m-acetamidothiocarbanilate, m. 168° (N 12.39, S 14.37%), was obtained in 60.3% yield from MeOCS_2Na and m-$O_2NC_6H_4NHAc$ in 60% MeOH and AcOH heated 15 hrs. at 60°; Et ester (64.0%), m. 154° (N 11.61, S 13.64%). Me m-nitrothiocarbanilate (45% from MeO-CS_2Na and m-$O_2NC_6H_4NH_2$ in 60% MeOH and a bit of

solid KOH heated 20 hrs. on a water bath), m. 119° (S 15.0, N 13.16%); Et ester, m. 115° (S 14.34, N 12.22%). The methods proposed by Orndorff and Richmond [*Am. Chem. J.* 22, 458(1899)] and Hofmann [*Ber.* 3, 120 (1889)] were also tested.

István Finály

Catalysis and catalysts. Zoltán Csűrös (Univ. Tech. Sci., Budapest, Hungary). Magyar Tud. 1, 41-5(1946). —No direct parallelism could be detected between the quantity of catalyst and the reaction velocity, but the existence of a max. and a min. could be proved. Variation of the amount of catalyst makes possible selective hydrogenation.   István Finály

Selective catalytic hydrogenation. Z. Csuros (Tech. Inst., Budapest, Hungary). *Magyar Kémiai* 1947, 110-18; cf. *C.A.* 41, 109.—Selective or oriented catalysis may form geometrical isomers in a group of atoms in a mol. or in a component of a mixt. The selectivity of the catalyst is the result of a series of reactions or side reactions, since most chem. reactions proceed in several steps, and the catalyst accelerates only one of the intermediate reactions, or because the time of contact and in different stages depending upon the substrate. Cis and trans isomers were each hydrogenated at different rates by varying the amt. of Pd catalyst. The results do not agree with Paal's rule. The speed of hydrogenation is not a linear function of the amt. of catalyst. There is always an amt. of catalyst with which the cis modification is the quicker; but there is also an amt. with which the hydrogenation of the trans modification is quicker. These conclusions were verified with fumaric and maleic acids; oleic and elaidic acids; angelic and tiglic acids; brassidic and erucic acids; meconic and citraconic acids; cinnamic, coumaric, coumarinic, and crotonic acids. The min. rate of hydrogenation of the trans modification always occurs with a smaller amt. of catalyst than that of the cis modification. Likewise, the same general observations regarding max. and min. amt. of catalyst and rates of hydrogenation were observed with the carbonyl bond in aldehydes and ketones. Also the optimum amt. of catalyst for the satn. of the carbonyl group is different than that required for the satn. of the ethylene group. PhCH:CHCHO was selectively hydrogenated at either point of unsatn. The cause of the selectivity of hydrogenation is the change in the course of

the max.-min. curve of the hydrogenation speed, which depends on the amt. of the catalyst. Further observations indicated that the carbonyl group of unsatd. aliphatic aldehydes and ketones cannot be hydrogenated but those of aromatic aldehydes and ketones are easily reduced. Crotonaldehyde absorbed 1 mole H_2, $PhCH:CHCHO$ and $PhCH:CH_2$ absorbed 2 moles. $PhCH:CHO$ was reduced at atm. pressure with colloidal Pd or with Pd pptd. on animal charcoal. However, aliphatic unsatd. ketones and aldehydes (crotonaldehyde, tiglaldehyde, and methylheptenone) under the same conditions could not be reduced to the corresponding alcs. Para substitution in aromatics accelerates reduction most and meta least. The selectivity with cis-trans isomers was observed with several catalysts, such as colloidal Pd, Pd on $BaSO_4$, Pd and Pt on animal charcoal, and colloidal Pt, in various solvents, such as H_2O, AcOH, acetone, aniline, and toluene. H_2 was likewise selectively oxidized to either BzOH or BzOH, using Pd on $BaSO_4$, as catalyst. Similar reduction selectivity was shown for the nitrile group. The catalytic hydrogenation of C_2H_2 and its derivs. likewise proceeds in 2 steps. Increasing quantities of catalyst shift the hydrogenation in favor of the cis compd. $PhCH:CCO_2H$ may either be reduced or decarboxylated. The duration of the dehydrogenation is a function of the speed const. and the order of reaction: $t = 1 - (1 - x)^n - a/-$ $(1 - n)K$. With various amts. of catalyst, not only the speed const. but also the order of reaction describes a max.-min. curve. The order of reaction can assume a value of 0 or a fraction. The speed shows a max. where the order most nearly approaches 0. The deviation from 0 of the order is caused by the hindering effect of the

reaction products, which restrains the further adsorption on the surface of the catalyst of the substance remaining unsatd., and thus is the more perceptible the smaller the difference between the adsorption of the compd. being satd. and the compd. already satd. Likewise, the amt. of adsorbed H_2 referred to a unit of catalyst, also shows a min.-max. curve. The extreme values of the adsorption curve are the same as the extreme values of the hydrogenation-time curve with equal amt. of catalyst. While for the trans form the max. lies at the abscissa value of the adsorption max., for the cis form a max. is shown above the min. The position is reversed with Pt pptd. on animal charcoal. Thus the H_2 adsorption of the catalyst dets. in advance the course of the speed curve. This involves a continuously changing 3-phase system where H_2 forms the gaseous phase, the solvent forms the liquid phase, and the catalyst forms the solid phase. A change in the amt. of catalyst changes the relationship between these 3 phases and between the substrates present in mol. state and the hydrogenation products.   R. E. Dunbar

PROCESSES AND PROPERTIES INDEX

Dressing of cellulosic textile materials with polymerization products. Zoltán Csuros and Sándor Groszmann. Hung. 134,133, March 1, 1948. The usual polymerization mixt. is adjusted to the optimal pH value by addn. of weak org. acids, such as tartaric or lactic acid, and amines or amine derivs., such as pyridine, methylamine, triethanolamine, aniline, or amino carboxylic acids, are added in the form of their fat acid salts as polymerization inhibitors. The mixt. is then incorporated with other dressing agents that when used alone are removable by washing. E.g., 15 l. 40% CH_2O soln. is mixed with 10 kg. urea, adjusted to a beginning pH value of 7.5, and kept at 18-22° for 9-11 hrs. Separately, 2500 g. methylamine stearate is emulsified with 2000 g. NH_3 stearate in 2-3 l. water and added to the CH_2O-urea mixt. as inhibitor, and subsequently made up to 100 l. The pH value of the product is adjusted to an optimal state between 4 and 5 by the addn. of not more than 10 g. 70% lactic acid for each l. If common starch paste is incorporated with this product, it will remain in the textile after repeated washings with water.   István Finály

A S A - S L A , METALLURGICAL LITERATURE CLASSIFICATION

New principles in catalysis. Selectivity. Zoltán
Csuros. *Magyar Kém. Lapja* 3, 29-37(1948).—A sum-
mary is given of literature data on selective catalysis.
C.'s investigations consisted of selective hydrogenation of
cinnamic aldehyde with colloidal Pd as catalyst and of
Ball and *o-*, *p-*, and *m*-hydroxybenzaldehyde in the pres-
ence of Pd catalyst pptd. on animal charcoal. The
Paal rule was found not to be valid. The amt. of cata-
lyst can det. the compds. obtained in hydrogenation.
                                                    István Finály

METALLURGICAL LITERATURE CLASSIFICATION

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Investigations on catalysts. VI. Mechanism and kinetics of hydrogenation of stereoisomeric ethylenecarboxylic acids. Zoltán Csűrös, István Oácsy, and Miklós Keiper

(Univ. Tech. Sci., Budapest, Hung.). *Acta Chim. Hung.* 1, 22-45 (1951) (in German); cf. C.A. 44, 4706. — Pd-animal charcoal prepd. according to Gattermann-Wieland was used as the catalyst with maleic, fumaric, and cinnamic acids. The curves of hydrogenation velocity showed a max. and a min. with increased amounts of catalyst. A new method was developed for the detn. of the order of reaction, and the results proved that besides velocity of hydrogenation the order of reaction also changed, fluctuating between zero and a fractional no. This change is, however, not proportional to the amt. of catalyst but shows both a max. and a min. The velocity const. showed the highest values when the reaction order was approx. zero. With varying concns. the velocity consts. increased with reduced concns. The product of the reaction has an inhibiting effect on the hydrogenation process, and its presence apparently changes the mechanism of the reaction. It was observed that the product of reaction represses both the adsorption of the substance and the adsorption of H. The differences observed in the hydrogenation velocities of maleic and fumaric acids are caused by differences in their adsorptions.

VII. The role of the hydrogen pressure in the kinetics and mechanism of catalytic hydrogenation. Zoltán Csűrös, István Géczy, and Tamás Nográdi. *Ibid.* 109-81 (in English). — The role of H was investigated in studies on the reaction kinetics and mechanism of the catalytic hydrogenation of ethylenic double bonds. When maleic and fumaric acids were hydrogenated in proportions of 1 mol. substrate to 1 mol. H, the reaction order and the rate const. as functions of the amt. of catalyst showed fluctuations following max.-min. curves. The overall order varied from 1.0 to 5 except where very small amts. of catalyst were used. The order with reference to H, was detd. by hydrogenating 0.7 mol. substrate with 1 mol. H, in which case the distance between the extreme points on the curve became less. When the relative concns. of the reactants were reduced by diminishing the H, pressure to 0.5 of its original value resulting in a proportion of 1 mol. H, to 13.4 mol. maleic acid, the order of the reaction increased to 1.9. Succinic acid formed during the hydrogenation of maleic acid reduced the order of the reaction. The terminal value of order with reference to H, approached 2, and this proves that at least 1.5 and probably 2.0 mol. H, take part in this reaction. This justifies the Thomas theory, and shows at the same time that the reaction has a free-radical mechanism. In the hydrogenation of 2-octene the max.-min. curve was replaced by a continuous function which agrees with results of preceding investigations and confirms the supposition that the max.-min. are caused by the adsorptive relations arising from the presence of a solvent.   István Finály

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Acyl derivatives of cyclohexanone oxime, with special regard to the Beckmann rearrangement. Zoltan Csuros, Konstantin Zech, Gyula Deiv, and Etel Zakry (Univ. Tech. Sci., Budapest, Hung.). *Acta Chim. Hung.* **1**, 66–83 (1951)(in German).—When cyclohexanone oxime (I) was treated with various acids of various concns. with no solvent or with CHCl₃, CHCl:CHCl, or C₆H₆, the mixt. cooled, treated with 20% NaOH, filtered, the filtrate shaken out with CHCl₃, the solvent evapd., and the residue distd., in each, the reaction products were either lactams, or oximes and lactams together. In 22.0–96.0% yields. By known methods the product of rearrangement can be obtained in high yield by the reaction of 0.86 mol. H₂SO₄ with 1.0 mol. oxime at the lowest possible concn. of H₂SO₄ (83.3% as compared to 75% stated by other authors). P₂O₅, PCl₅, and H₃PO₄ are suitable for rearranging the oxime. SOCl₂ also effects the rearrangement; the rate of rearrangement depends, however, on the nature of the solvent used. New esters of I were prepd. by treating the *Na deriv.* (II) of I with various acid chlorides. They can be classified in 4 groups: (a) esters which on hydrolysis yield I; (b) esters of bivalent acids behaving like the group; (a), except for the disulfide compd.; (c) esters which give cyclohexanone and a peroxy acid or H₂O, when hydrolyzed; and (d) esters which give the Beckmann rearrangement. The following compds. were prepd.: I *acetate*, b. 130°, was obtained in 90.3% yield from I, C₆H₅N, CHCl₃, and AcCl after shaking out with water and evapd. the CHCl₃ in C₆H₆ soln. I *benzoate* (94.4%) was obtained by treating a suspension of II with (COCl)₂ gave 90.4% I *oxalate*. Similar treatment of II with PhSO₂Cl, and SOCl₂, whereas I *sulfate* (88–80%) was obtained from II and SOCl₂, II and SOCl₂ gave 85% I *sulfite*, m. 71°. Treatment of II with CS₂ and recrystn. of the product from Me₂CO gave the *disulfide compd.* (C₁₄H₂₀O₂N₂S₂) (III), m. 62°. Hydrolysis of III gave a mixt. from which approx. equal amts. of I and cyclohexanone could be sepd. I *bromide* (91.2%), m. 88° was obtained from I in abs. C₂H₅N with BrCl. I *Et carbonate* (90.8%) was obtained from II with EtOCl:O)Cl. I *p-bromobenzoyl/oxate* (almost 100%), m. 10°, was obtained from II with PhSO₂Cl. I *p-phthaloxe-sulf/onate* (95.7%) was obtained from II with 2-C₁₀H₇SO₂Cl. I *p-toluenesulfonate* (97.5%), m. 96°, was obtained from II with p-MeC₆H₄SO₂Cl. I *p-toluenesulfonate* obtained from II with p-MeC₆H₄SO₂Cl was obtained in liquid form from II with p-MeC₆H₄SO₂Cl. II treated with picryl chloride, gave 95.0% I *picrate* (IV), m. 83°. IV boiled 5 hrs. in (CH₂Cl)₂ rearranged to the *N-picryl lactam*, m. 175°.

Istvan Finaly

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The sulfuric acid ester salt of cyclohexanone oxime. Zoltán Csuros, Konstantin Zech, and Sára Zech (Univ. Tech. Sci., Budapest, Hung.). Acta Chim. Hung. 1, 83-93(1951)(In German): cf. preceding abstr.—The structure of the H_2SO_4 ester salt of cyclohexanone oxime (I) prepd. from I and N_2SO_3H (IA) or from cyclohexanone and H_2NOSO_3H was examd. Cyclohexanone with sulfoperamidic acid in the presence of an equiv. amt. of alkali as described by Knoll (cf. Ger. patent 540,409, C.A. 26, 3203), gave a product identical to that obtained by treating I with IA. Catalytic hydrogenation of this product proved that it is not a deriv. of ε-aminocaproic acid lactam but a H_2SO_4 ester salt(II)of I, $(CH_2)_5C:NOSO_3K$. Catalytic hydrogenation of II gave cyclohexylamine and dicyclohexylamine. II was surprisingly sensitive to alkali, which is unusual for a ketoxime H_2SO_4 ester salt. This is caused by the cleavage which is effected not only by mineral acids but also by alkalies with a simultaneous rearrangement. The cleavage products were ε-leucine lactam and $KHSO_4$. The H_2SO_4 group is cleaved in this case, differing from other ketoxime H_2SO_4 ester salts, not as a salt of sulfoperamidic acid but as a H_2SO_4 salt, leaving N on the residue.   István Finály

CSUROS Z.

HUNGARY/Chemistry - Catalysts   1951

"Role of the Hydrogen Pressure in the Kinetics and
Mechanism of Catalytic Hydrogenations," in English,
Z. Csuros, I. Geczy, T. Nogradi, Org Chem Tech
Inst, U Tech Sci, Budapest

"Acta Chimica Acad Sci Hungaricae" Vol I, No 1,
PP 168-181

Examd kinetics and mech of catalytic hydrogenation
reaction of double bonds with respect to hydrogen
pressure, and retarding effect of reaction prod-
uct under these conditions. Modified course of
max-min curve and studied by systematic variation

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HUNGARY/Chemistry - Catalysts (Contd)   1951

of substrate concn and by hydrogenation without
solvents. In the case of octene-2 without sol-
vent, max-min curve disappeared and gave place
to monotonous function.

181T25

181T25

CSUROS, Z.

HUNG.

1/ Catalysis. X. Rate and selectivity of hydrogenation of sunflower oil in the presence of nickel formate catalyst. Zoltán Csuros, István Géczy, and Dénes Szabó (Tech. Univ., Budapest). Acta Chim. Acad. Sci. Hung. 2, 33-56 (1952)(in English); cf. C.A. 49, 3905f.—A soln. of 110 g. Na₂CO₃ in a little H₂O was added slowly to a boiling soln. of 250 g. NiSO₄·7H₂O in 500 g. H₂O; the resulting ppt., after washing with H₂O until neutral, was dissolved in 90-100 g. HCO₂H, boiled, and filtered, giving 161 g. (98%) green cryst. Ni(HCO₂)₂ (I) after drying at 100°. Treatment of a Ni salt with HCO₂Na gave I in 91% yield. The catalytic activity of I was not reduced by the presence of an Fe impurity but was increased by reduction of the particle size to 10,000 mesh/sq. in. Heating of a 1:1 suspension of I and refined sunflower oil (II) at 245-50° for 15-20 min. in a vacuum gave a black oily suspension of Ni which was washed 3 times by decantation with five-fold its vol. of petr. ether; removal of all traces of solvent in a vacuum desiccato (to which air is then admitted slowly over 0.5 day to prevent destruction of the Ni during glowing) and sifting of the ppt. through a 10,000 mesh/sq. in. sieve, gave a catalyst (III) consisting of 60% Ni in adsorbed oil. III is stable when stored in a glass-stoppered bottle. The rate of hydrogenation of II with 0.4% (optimum amt.) III increased by raising the temp. from 160° to 200° and declined above 200°. An induction period was present at 120-40°. By controlling the rate of hydrogenation, II could be selectively reduced so that only 1 of the double bonds in the linoleic acid became satd. Selectivity increased with larger quantities of III up to 0.8% and with a rise in temp. up to 220°; above this temp. and concn., selectivity declined. M. Jacobson

C SOROS, ZOLTAN

Catalysts. XI. The role of autoxidation processes in the formation of films of drying oils. Zoltán Csűrös, Zoltán Haus, and Gyula Deák (Tech. Univ., Budapest). *Chim. Acad. Sci. Hung.* 2, 213-30 (1952) (in English) cf. *C.A.* 49, 11300*e.* — Absorption of O by BzH in the presence of Co and Mn driers increased with increased amounts of drier. In expts. with Hungarian linseed oil technical grade, on strips of Japanese paper with Mn naphthenate driers ... and ... per g. linseed oil, ... decreased. The peak was ... in the presence of Co drier ... than with Mn ... g. drier ... max. peroxide no. ... drier amount. When linseed oil was kept in diffuse ... in air for periods up to 9 hrs. the changes of peroxide no. were insignificant. Under ultraviolet irradiation the nos. increased sharply to a max. (60.5 ml. 0.02 N $Na_2S_2O_3$ for 1 g. oil); a simple heating to 140° led to max. lower than in ultraviolet light, but the max. were reached ... rapidly. Under the effect of diffuse light the ... of heat treated oil with Mn drier sharply ...

An initial induction was followed by a peak ... oil attained the max. peroxide no. ... oil treated at room temp. ... autoxidation of linseed oil ... initial period of drying ...

... depended upon the initial components of the ... of drier, and the conditions of drying. The length of the ... duction period made it possible to draw certain conclus... as to whether drying took place in a downward or an ... ward direction.   István ...

Z. CSUROS, J. FODOR, Z. HAJOS.

"Investigations on catalysts. XII. Effect of ion exchangers in esterification" p. 459
(ACTA CHIMICA ACADEMIAE SCIENTIARUM HUNGARICAE, Vol. 2, No. 4, 1952, Budapest, Hungary)

SO: Monthly List of East European Accessions, L.C., Vol. 2 No. 7, July 1953, Uncl.

ZOLTAN CSUROS

Hungary/ Organic Chemistry - Theoretical and general questions   E-1
             on organic chemistry

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11602

Author   : XI. Csuros Zoltan, Hajos Zoltan, Deak Gyula.
             XII. Csuros Zoltan, Fodor Jozsef, Hajos Zoltan.
Title   : Investigation of Catalytic Reactions. XI. Role of Autoxidation Proces-
             ses in Formation of Drying Oil Films. XII. Effect of Ion-Exchange Re-
             sins on Esterification Reaction.

Orig Pub : Katalizatoros vizsgalatok. XI. Autoxidacios folyamatok szerepe
             szarado olaj filmek kialakulasaban. XII. Ioncserelok hatasa
             eszterezesre. Magyar tudoman. akad. kem. tudoman, osztalyanak
             kozlemenyei 1953, 3, No 4, 469-485; 501-513 (Hungarian)

Abstract : Communication XI. It was ascertained that on autoxidation of C_6H_5CHO
             in $CHCl_3$ rate of O_2 absorption increases in the case of addition of
             the sicdatives, naphthenates of Co (I) and Mn (II). In the case of lar-
             ge amounts of I or II amount of absorbed O_2 is greater. After absorp-
             tion of a certain amount of O_2 the system reaches an equilibrium and
             further absorption of O_2 is not observed. On autoxidation of linseed

Card 1/5

Hungary/ Organic Chemistry - Theoretical and general questions   E-1
              on organic chemistry

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11602

oil (LO) in the presence of I or II peroxide value (PV) rises at first
and then decreases. In the presence of I maximum PV is reached sooner
than in presence of II. Highest value of maximum is associated with
the use of definite, optimal, amount of siccative; in the presence of
lesser or greater amount of siccative value of PV maximum decreases.
Investigated were the variations of PV of LO on irradiation with diffu-
sed light, ultraviolet radiations and on heating at 140°. In the first
mentioned case a slow linear increase of PV is observed. Under the ac-
tion of ultraviolet radiations PV increases faster and reaches a defi-
nite maximum level. On heating an analogous maximum is reached still
faster after which PV drops rapidly; in this case maximum value is lo-
wer than on irradiation with ultraviolet. Boiled oil prepared with the
use of II, shows on irradiation with diffused light an increase in PV
only after a prolonged induction period, after which PV rises sharply
to maximum level and then decreases. On exposure to ultraviolet radia-
tions PV of oil increases sharply to a maximum the value of which is
higher than in the preceding instance; following the maximum PV drops

Card 2/5

E-1

Hungary/ Organic Chemistry - Theoretical and general questions
            on organic chemistry

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11602

very rapidly. In this case the maximum is reached more rapidly than in
the case of unboiled LO, and the process of decomposition of peroxides
also occurs more rapidly than with LO. On heating at $140°$ very rapid de-
composition of peroxides is observed in the boiled oil under study.
In boiled oil PV maximum is attained considerably sooner than in the ca-
se of drying oil prepared in the cold with the same siccative as is
used in the boiled oil, but in the latter instance the maximum PV level
is much lower. During the initial period of drying of LO the chain pro-
cess of autoxidation is playing a substantial part. As the drying pro-
gresses autoxidation becomes of subordinate importance and decomposi-
tion of peroxides sets in, which is probably associated with occurence
of bond formation between activated molecules of the oil. This con-
firms the previously proposed mechanism of drying (Powers P.O. et al.,
Ind. Eng. Chem., 1951, 33, 1257). As concerns the mechanism of ac-
tion of the siccatives, it was ascertained that they are capable of
catalyzing the formation and the decomposition of peroxides.

Card 3/5

Hungary/ Organic Chemistry - Theoretical and general questions
on organic chemistry

B-1

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11602

Communication XII. The reaction of phthalic anhydride with butanol
was utilized to investigate the effect upon the reaction of esterifi-
cation, of fractions of different degree of dispersion, of a cathion
exchange resin of phenol sulfonic acid type, Wofatit KS. Activity
of catalyst (amount of acid group titrated with KOH) increases with
increasing degree of dispersion up to a certain limit after which in-
creased degree of dispersion produces no appreciable effect on the
activity. Velocity of reaction increases with increasing amount of
catalyst up to a certain optimal amount; on use of greater amounts
of catalyst velocity of the reaction decreases. On increase of the
degree of dispersion of the catalyst its catalytic action (terminal
degree of conversion) decreases except for those instances when a
highly dispersed catalyst is subjected to activation after comminu-
tion. By means of ion-exchange resins it is possible to attain the
same extent of conversion as with an equimolecular amount of
H_2SO_4, but more slowly than with H_2SO_4.

Card 4/5

Hungary/ Organic Chemistry - Theoretical and general questions
          on organic chemistry

                                                                        E-1

Abs Jour   :   Referat Zhur - Khimiya, No 4, 1957, 11602

          To activate the catalyst it is treated with dilute H_2SO_4 while

          stirring ($\sim 20°$). Drying of the catalyst ($60°$) to constant weight
          has a detrimental effect on its catalytic properties, therefore it
          is used in air-dry condition.
          Communication X see RZhKhim, 1955, 28809.

Card 5/5

CSUROS, Z.

541:128.84

5. 'Autoxidation processes — *Autoxidation polymerisation* — Z. Csűrös. (Hungarian Journal of Chemistry — *Magyar Kémiai Folyóirat* — Vol. 59, 1953, No. 3, pp. 83—91, 10 figs., 4 tabs.)

It was found (contrary to former data in literature) that the autoxidation rate of ascorbic acid in alkaline media is higher and proceeds further than in acid media, i. e. oxidation is promoted by a higher pH. The effect depends on the bases used, i. e. if the same pH is adjusted by potassium hydroxide, sodium hydroxide or ammonium hydroxide the effect is different. The pH decreases during the reaction, except between pH 2.0 and 5.5, and the higher the starting pH the more it decreases. By using buffer systems which counterbalance the acidification process, the rate of oxidation increases. Certain compounds, themselves autoxidable, e. g. hydroquinone, increase the oxidation rate by oxygen transport. Materials with a large specific surface (e. g. charcoal, carbon black) exhibit the same properties probably due to their ability to absorb oxygen. In former experiments on the oxidation of benzaldehyde, in a 10% carbon tetrachloride solution with palladium as catalyst on barium sulfate, it was observed that a certain amount of catalyst could be replaced by an inactive carrier without a change in the reaction rate. This "carrier effect" was investigated in different solvents and on benzaldehyde using different catalysts (e. g. palladium on barium sulfate, cupric oxide on kaolin, etc.). It was concluded that the "carrier effect" is observable not only in connection with precious metal catalysis but in the case of metal oxides (e. g. cupric oxide) as well.

Hungarian Technical Abst.
Vol. 6 No. 1
1954

Csörös, Z.

Investigation of catalysts. XIII. Autoxidation of ascorbic acid as a function of pH values. Z. Csörös and I. Petró (Acta chim. hung., 1955, 7, 199—222).—The oxidation of ascorbic acid (I) is first-order: the curve of its rate constant as a function of initial pH values shows two sharp max. at pH 5 (1 mol. of alkali) and 11·5 (2 mol.), but the use of NaOH, KOH, aq. NH$_3$ and other bases (e.g., tartrate, phosphate and acetate) leads to different results with each base. In general, the O uptake increases with initial pH values up to 10 mol. of alkali, and proceeds to 2 atoms of O per mol. of I. At the pH 5 max., dehydroascorbic acid is the only product. Apart from this narrow region the oxidation is irreversible and proceeds by several simultaneous routes. The O uptake of dehydroascorbic acid is low in acid and alkaline solutions, and changes produced are mainly degradations. (28 references.)   T. P. McLaughlin.

So. Monthly List of EERL, LC, Vol. 5,
No. 3   March '56

Csürös, Z.

Investigations on catalysis. XV. Polymerization and catalytic hydrogenation as concurrent reactions. Z. Csürös, I. Géczy and F. Szalai. (Acta chim. Hung., 1955, 8, 285–297). Both Me methacrylate and Et acrylate can be polymerized with catalytically activated H at 18° in absence of per-compounds, but acrylonitrile, styrene and vinyl acetate can be polymerized similarly only in presence of a per-compound (e.g., 0·05 g. of $K_2S_2O_8$ per g. of ester). Hydrogenation and polymerization are probably concurrent reactions in these redox systems, the concn. of H at the catalyst surface and the relative rates of hydrogenation and polymerization determining which reaction is dominant. In presence of very high concn. of H, hydrogenation occurs, but polymerization takes place at low concn. of H. The formation and influence of free radicals of H in these reactions is discussed.   W. J. BAKER

CSUROS, Z.: GECZY, I.

Magyar Kemikusok Lapja - Vol. 10, no. 5, May 1955

O-cresol as the new raw material of our chemical industry.   p. 153.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955
                                                              Uncl.

CSUROS, Z. (Prof., Dr.)   Hungary

Neure Entwicklung auf dem Gebiet der Theorie und Praxis der Hochpolymeren

(Hauptjahrestagung 1956 der Chemischen Gesellschaft in der Deutschen Demokratischen Republik).

Aus dem Tagungsprogramm - Nachmittags: Gruppe C:

Prof., Dr. Z. CSUROS, Budapest, "Polymerization und katalytische Hudrierung als konkurrente Reaktionen."

SOURCE: Plaste und Kautschuk, October 1956, Unclassified.

CSUROS, Z.; PETRO, J.

CSUROS, Z.; PETRO, J. Examinations by catalysts. XVI. Autoxidation of ascorbic acid
in the starting pH function by various alkalies. P. 137.

Vol. 8, No. 1, 1956
KOZLEMENYEI
SCIENCE
Budapest, Hungary

So: East European Accession, Vol. 6, No. 2, Feb. 1957

CSUROS, Z.

CSUROS, Z. - Geza Zemplen (1883-1956). p. 225.
        Vol. 11, no. 8, Aug. 1956
        Magyar Kemikusok Lapja, Budapest, Hungary

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4--April 1957

CSUROS, Z.

CSUROS, Z. - Lajos Kovacs Muanyag zsebkonyv (Handbook on Plastic Materials);
        a book review, p. 259
        Vol. 11, no. 8, Aug. 1956
        MAGYAR KEMIKUSOK LAPJA - Budapest, Hungary

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4— April 1957
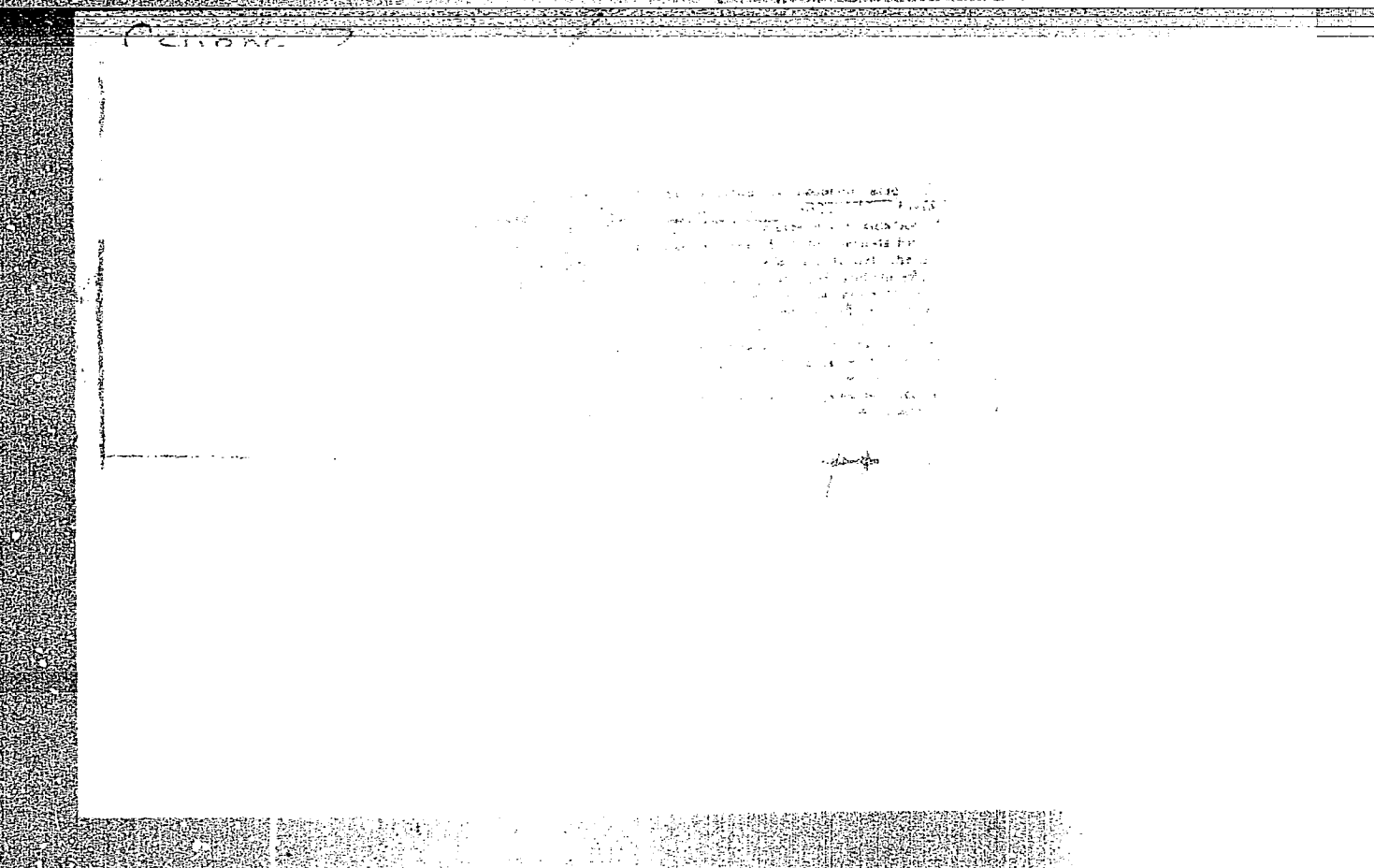
HUNGARY / Organic Chemistry. Natural Substances and   G-3
Their Synthetic Analogues.

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57600.

Author   : Csuros Z., Petro J.
Inst   : Not given.
Title   : Investigations of Catalysis. XVII. Autooxidation
of Ascorbic Acid as a Function of Temperature and
Initial pH.

Orig Pub: Magyar tud. akad. kem. tud. oszt. kosl., 1957,
No 1, 43-60.

Abstract: Effect of temperature on the addition of oxygen
(AO) to ascorbic acid (I) was investigated. At a
pH <3, AO increases to a greater degree with in-
creasing temperature than in neutral media (at pH
of 4-8) or in alkaline media (pH >8). At a 0.4
pH (acidified with HCl) and at 60°, 5 times more

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Abstract: O_2 goes into the combination than it does at 30°
and with pH varying from 4-8 and >8. With the
increase in temperature from 30° to 60° the AO
increases only by 20-30%. In alkaline media the
AO proceeds faster, with the equilibrium being es-
tablished in 1-2 hours. In an acid medium the
equilibrium is not reached in 3 hours. At a pH of
4-6 and at a temperature of 40° and higher, the
increase in pH, as the result of reaction, is not
noticed. At 50° and higher, in all the cases, pH
tends to decrease toward the end. The highest AO
was noticed at 90°. Three AO maxima occur at 0.5,

Card 2/5

Distr: 4E2c(j)

4.   A rheological study on high-molecular materials. 1. (In German) Z. Csürös, T. Geczy, M. Grosz-mann, K. Jakuts. Periodica Polytechnica, Chemical Engineering. Vol. I, 1957, No. 2, pp. 105—129, 13 figs., 13 tabs.

The flow curves, pour points, elasticity and hardness of typographical ductor rolls made of gelatine and starch were determined by means of a Hoeppler consistometer. It was found that the Herschel-Bulkley equation $\left(\frac{\partial y}{\partial t} = A(\tau - \tau_0)^n\right)$ is valid for the quasi-viscous curves and flow curves of both materials where $n < 1$ for gelatine-based roll materials and $n > 1$ for starch-based substances. The starch material stands up to compressive stresses in practice better than the gelatineous substance and the consistency of the former changes considerably less with the increase of temperature. The elastic properties of the starch-containing material are more favourable than those of the gelatineous substance since the former undergoes greater immediate and lesser delayed and permanent deformation. The starch-containing roil material is plasto-elastic below 40°C and visco-elastic above this temperature. The corresponding characteristic temperature for the gelatineous material is 30°C.

Distr: 4E2c/4E3d

59. Investigation on the use of Raney nickel catalysts.
(In English) Z. Csűrös, J. Petró, J. Vörös
Periodica Polytechnica, Chemical Engineering. Vol. 1,
1957, No. 3, pp. 153—185, 29 figs., 2 tabs.

The change of the hydrogenating activity of Raney.
nickel was studied by varying the conditions of the prep-
aration (dissolution, time and temperature of after-
treatment) using acetone, acetophenone, benzophenone,
eugenol and veratrol as model compounds. The aromatic
ring of veratrol was hydrogenated at 30 atm and 160°C,
the other compounds being treated at atmospheric pres-
sure and room temperature. It was found that the activity
of the catalyst and the extent of hydrogenation depends
greatly on the conditions of preparation, the degree of the
effect differing for each model. The effect of various added
materials, such as organic and inorganic bases and high-
molecular N-containing organic compounds, was investi-
gated as well. The greatest increase of activity was pro-
duced with dimethyl aniline used in amounts of 0.1 mol
referred to the substrate. Triethylamine was also found
effective. Inorganic bases and high-molecular organic
materials had either no effect or an unfavourable effect.

HUNGARY / Physical Chemistry. Kinetics. Combustion.   B-9
Explosives. Topochemistry. Catalysis.

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 76756.

Author : Csueroes, Z., Geczy, I., and Keresztely, T.
Inst   : Not given.
Title   : Catalytic Studies. VIII. Change in the Reaction
Order in the Hydrogenated Compound During Cata-
lytic Hydrogenation.

Orig Pub: Magyar Tud Akad Kem Tud Oszt Koezl, 9, No 2,
195-205 (1957) (in Hungarian).

Abstract: On the basis of previously published data on the
catalytic hydrogenation of cinnamic, maleic, and
fumaric acid, the authors arrived at the conclu-
sion that in the course of the hydrogenation the
order of the reaction in the hydrogenated com-

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HUNGARY / Physical Chemistry. Kinetics. Combustion.
Explosives. Topochemistry. Catalysis.

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 76756.

Abstract: pound increases in the majority of cases from 0
to 0.6. In isolated cases when very small amounts
of catalyst are used the order of the reaction
does not change. For communication XVII see
RZhKhim 1958, 57600.

Card 2/2

Abs Jour   : Ref Zhur - Khim., No 3, 1959, 10562

duration of stirring, and time of storage, on properties
of pastes prepared from poly(vinyl chloride) powder and
different plasticizers of the dialkyl phthalate series.
For this purpose a determination was made of the visco-
sity curves of the preparations under study. Shear
stress was measured in the interval 10-300 g/cm^2, dis-
placement rate varied between 0.1-5 cm/sec. Flow velo-
city of the pastes under study is not proportional to
shear stress. Viscosity of pastes obtained on vigorous
stirring is higher than that of corresponding pastes pre-
pared with gentle stirring. This difference is enhanced
with increasing content of poly(vinyl chloride) in the
paste. Viscosity is also increased with increased dura-
tion of stirring. After stirring for 50-60 minutes, the
increase in viscosity reaches maximum value. Change in

Card 2/3

Abs Jour   : Ref Zhur - Khim., No 3, 1959, No 10562

viscosity on standing depends on composition of paste
and the duration of stirring at the time of preparation.
Duration of stirring at the time of preparation. Dura-
tion of stirring has a considerably greater effect than
length of storage of the paste.
III. An Ostwald viscosimeter was used to determine cha-
racteristic viscosity $[\eta]$ of some samples of polyethy-
lene of known molecular weight M, in paraffin oil (pa-
raffin hydrocarbons containing 20-21 C-atoms) at 85° and
140°. The following correlations were found: $[\eta] = 2.898 \cdot 10^{-4} M^{0.7762}$ at 85°; $[\eta] = 2.766 \cdot 10^{-3} M^{0.7762}$
at 140°. Part I, see RZhKhim, 1958, 72806. -- S. Zelikman.

Card 3/3

2 5 1

Distr: 4E2c(j)

147. Experiments for the production of after-chlorinated polyvinyl chloride in Hungary. (In German) Z. Csűrös, M. Groszmann, B. Zanffa. Periodica Poly-technica, Chemical Engineering. Vol. 2, 1958, No. 1, pp. 59—63, 3 tabs.

The conditions of chlorination of polyvinyl chloride were studied in different solvents and with different catalysts as a function of time. The reaction was found to take place quicker in higher-boiling solvents, however a temperature limit is set by the danger of the decomposi-tion of the product. Several catalysts and catalyst mixtur-es were tried besides those known from literature with which the rate of the chlorination reaction could be favourably influenced. Special care had to be taken during the experiments to avoid excessive molecular degradation. In order to obtain products of uniform properties the temperature, concentration and time of chlorination must be closely controlled. The primary purpose of the experiments was to produce a technically useful adhesive material, at the same time interesting observations were made in connection with the catalysis.

Polymerization through catalytically activated hydrogen. Z. Tsuros and T. Géczy (Tech. Univ., Budapest, Hung.). *Periodica Polytech.* 2, 65-88(1958).—Some unsatd. compds. were polymerized in the presence of H and a hydrogenation catalyst. Thus, Me methacrylate, Me acrylate, and Et acrylate were polymerized in MeOH in the presence of H and Pd on BaSO₄. The H· radicals that were formed initiated the polymerization. Acrylonitrile, styrene, and vinyl acetate required a peroxide in addn. to the activated H. The rates of these reactions were measured.

Millard Maienthal

Distr: 4E3d/4E2c(j)

Z. CSUROS

Distr: 4E2o(j)/4E3d

Investigations by use of boron trifluoride and its complexes. Z. Csuros and Gy. Deak (Polytech. Univ., Budapest, Hung.). *Periodica Polytech.* 2, 135–43(1958).—The speed of anomerization of sugar esters, catalyzed by BF_3 (gas), $BF_3 \cdot (AcOH)_2$ (I), or $BF_3 \cdot Et_2O$ (II) in the solvents Ac_2O, AcOH, $CHCl_3$, and mixts. of Ac_2O-AcOH depended on the catalyst concn. and the types of solvent. The reaction consts. $[(k_1 + k_2) \times 10^4/\text{min.}]$ for β-pentaacetyl-glucose (0.1 mol./l.) in Ac_2O soln. are for catalyst I = 206.0; II = 70.5; in AcOH for I = 8.78; II = 5.20. The high acidity of the Ac_2O solvent is responsible for the high reaction const. The relative basicities of AcOH and Et_2O (introduced with catalyst complex) as compared with BF_3 are believed to hold a portion of the BF_3 bound and thus decrease the effective catalyst concn. Reaction consts. for anomerization of pentaacetylglucose at 25.3° with 0.125 mol./l. of I for various molar concns. of $Ac_2O/(AcOH)_2$ are: 0.0000/0.2020 = 3.20; 0.0031/0.1142 = 3.52; 0.0002/0.0090 = 7.85; 0.1030/0.0475 = 17.40; 0.1160/0.0200 = 38.70; 0.1290/0.0000 = 206.00.   Roland E. Kreibich

Z. CSUROS

Distr: 4E-c(j)

Chlorination of poly(vinyl chloride). II. Z. Csuros, M. Groszmann, and B. Zsuffa (Polytech. Univ., Budapest, Hung.). Periodica Polytech. 2, 183-7(1958): Chlorination of poly(vinyl chloride) (I) (55% Cl_2) in CCl_4, $C_2H_2Cl_4$, $C_2H_4Cl_2$, and PhCl in the presence of $TiCl_4$, PCl_5, $SbCl_5$, and BF_3 gave the highest chlorination with $SbCl_5$ in $C_2H_2Cl_4$ at 130–6°. In CCl_4 at 78° the end product had % Cl with PCl_5 = 57.0 (12 hrs.); $SbCl_5$ = 56.2 (8 hrs.); $TiCl_4$ = 56.7 (8 hrs.). In $C_2H_2Cl_4$ at 82–4° with 1% $TiCl_4$ = 59.0, 3% = 62.2, 5% = 60.3% Cl; with 3% PCl_5 = 59.8, with 5% PCl_5 = 61; with 5% $SbCl_5$ = 60.0, 3% BF_3 = 60.0% Cl in end product. In $C_2H_4Cl_2$ at 130–6° with 1% $TiCl_4$ = 60.9, 3% $TiCl_4$ = 60.7–2.5, 5% $TiCl_4$ = 61.7% Cl_2; with 3% $SbCl_5$ = 61.3, 5% $SbCl_5$ = 64.7; with 5% PCl_5 = 61.0% Cl. Chlorination in PhCl at 130–2° for 4.5 hrs. gave with 1% $TiCl_4$ = 58.2, 3% $TiCl_4$ = 59.3, 5% $TiCl_4$ = 59.4% Cl; with 5% $SbCl_5$ = 58.3, 5% BF_3 = 59.3% Cl in final I. A catalyst mixt. of $TiCl_4$ and BF_3 (anisole complex) in PhCl (130–2°, 4.5 hrs.) gave I with 60.2% Cl, in $C_2H_4Cl_2$ (82–4°, 5 hrs.) 58.5%, in $C_2H_4Cl_2$ (130–2°, 3.5 hrs.) 60.7%. Mol. wts. of the I obtained were 29,000–52,000. No correlation was found between Cl content and mol. wt. Catalyst concn. in excess of 3% did not improve the rate of chlorination.

Roland E. Kreibich

CSUROS   Z

35. Experiments for the production of after-chlorinated poly-
vinyl chloride. II.* (In German) Z. Csüros, M. Groszmann, K. Zauffa. Periodica Polytechnica, Chemical
Engineering, Vol. 2, 1958, No. 3, pp. 183—187, 8 figs, 8 tabs.

The changes in the chlorine content of the molecular
weight were studied in different solvents and the influence
of the nature and amount of the applied catalyst was investi-
gated. The chlorination catalysts were TiCl₄, BF₃, SbCl₃, and
PCl₅. It was found that these catalysts were especially effec-
tive in an ethylene dichloride solution. The rate of the chlorin-
ation was not increased by using the catalysts in greater
than 3% concentration. The extent of the degradation of
the molecule is a function of the temperature, the optimum
being at 130° C. At this temperature, a 20% decrease of the
molecular weight was found.

HUNGARY / Physical Chemistry--Kinetics.   Combustion.   B-9
            Explosions. Topochemistry. Catalysis.

Abs Jour   : Referat Zhur--Khimiya, No. 11, 1959, 37927

Author   : Csueroes, Z.; Geczy, I.; and Czuffa, B.
Inst   : Hungarian Academy of Sciences
Title   : Investigation of Catalysts. XXI. Catalytic
             Hydrogenation and Polymerization Processes as
             Competing Reactions. III. Kinetics and Mech-
             anism of the Catalytic Redox Polymerization of
             Acrylonitrile.

Orig Pub   : Magyar Tud Akad Kem Tud Oszt Koezl, 9, No. 4,
             423-432 (1958) (in Hungarian); Makromolek Chem,
             27, No. 3, 180-191 (1958) (in German)

Abstract   : The authors have studied the polymerization of
             aqueous acrylonitrile solutions under an atmo-

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HUNGARY / Physical Chemistry--Kinetics.   Combustion.   B-9
          Explosions.   Topochemistry.   Catalysis.

Abs Jour   : Referat Zhur--Khimiya, No. 11, 1959, 37927

sphere of H_2 in the presence of $K_2S_2O_8$ (I), using
Pd catalysts precipitated on $BaSO_4$. It is shown
that the rate of polymerization is proportional
to the square root of the concentration of I and
that with increasing monomer concentration, the
rate of polymerization passes through a maximum.
The degree of polymerization depends linearly
on the time. The presence of an induction per-
iod has been established; the length of that
period depends on the concentration of I. The
kinetic relationships for the system described
are the same as those obtaining in the polymeri-
zation of acrylonitrile in other redox systems.
From this the authors conclude that the primary
stage of the polymerization proceeds not at the

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surface of the catalyst but in the solution.
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